This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A target locating and *in vivo* sensor system adapted for use with a therapy delivery and/or imaging source, comprising:

an external solenoid member;

a mechanism operably associated with the external solenoid member, wherein, in operation, the mechanism is configured to controllably move the solenoid external of a patient;

a controller configured to direct the movement of the mechanism, the controller being in communication with a power source configured to power the external solenoid;

at least one implantable wireless unit comprising a solenoid, wherein, in operation, the unit solenoid held internally in the patient cooperates with the external solenoid to generate a coupling signal having a signal strength that varies based on the position of the external solenoid member relative to the implanted unit; and

a computer module in communication with the controller comprising computer program code that evaluates the coupling signal strength in relation to the position of the external solenoid and determines the position of the at least one internally implanted unit.

2. (Original) A system according to Claim 1, wherein the at least one implantable unit is a sensor configured to sense at least one predetermined parameter of interest *in vivo,* and an external reader configured to wirelessly communicate with the at least one implanted unit to obtain data associated with the at least one predetermined parameter of interest.

3. (Original) A system according to Claim 1, wherein the mechanism comprises an articulated arm.

4. (Original) A system according to Claim 2, wherein the external reader is configured to communicate with the implanted sensor unit using a bit encoded RF signal.

5. (Previously Presented) A system according to Claim 1, wherein the at least one unit is configured to wirelessly relay an RF signal to the reader when implanted in tissue.

6. (Previously Presented) A system according to Claim 1, wherein the external solenoid and the internal solenoid of the at least one sensor unit are configured to cooperate to generate a detectable coupling signal at a depth of up to at least about 14 cm.

7. (Previously Presented) A system according to Claim 2, wherein the at least one sensor unit is a plurality of discrete sensor units.

8. (Previously Presented) A system according to Claim 7, wherein the plurality of sensor units communicate with the external reader at the same frequency using unique bit encoded identifiers in the RF signal.

9. (Previously Presented) A system according to Claim 8, wherein the plurality of sensors are configured to be individually polled by the external reader.

10. (Previously Presented) A system according to Claim 1, wherein the at least one implanted sensor unit is chronically implanted for at least 1 week.

11. (Previously Presented) A system according to Claim 2, wherein the at least one parameter comprises radiation dose.

12. (Previously Presented) A system according to Claim 2, wherein the at least one parameter comprises temperature.

13. (Currently Amended) A system according to Claim 2, wherein the controller is in communication with an external beam radiation therapy source, and wherein the external solenoid and the at least one sensor unit solenoid are configured to generate a coupling signal that is detectable when the external solenoid and the sensor unit solenoid are separated by at least about 14 cm.

14. (Canceled)

15. (Currently Amended) A system according to Claim 1, wherein the external solenoid generates a signal shape that varies with spatial and angular orientation with the internal solenoid of the sensor unit, and wherein said computer module comprises computer program code that ~~receives~~ evaluates ~~the~~ signal strength and the detected coupling signal strength and deconvolutes the signal shape with respect to position to determine the spatial location of the sensor in the subject.

16. (Previously Presented) A system according to Claim 15, wherein the controller directs the mechanism to move the solenoid through a three dimensional pattern in free space to generate a corresponding response coupling signal, and wherein the computer module program code that evaluates the coupling signal strength uses the response signal generated by the three dimensional pattern to determine the position of the sensor unit.

17. (Previously Presented) A system according to Claim 1, wherein the computer module further determines whether there is angular shift of the at least one sensor unit from an *a priori* position.

18. (Previously Presented) A system according to Claim 1, wherein the articulated arm is configured to controllably move the solenoid in three dimensions.

19. (Previously Presented) A system according to Claim 8, wherein the plurality of sensor units are configured to relay data regarding radiation dose and temperature to the reader.

20. (Currently Amended) A system according to Claim 8, wherein the frequency is between about 500~~100~~kHz-1MHz.

21. (Previously Presented) A system according to Claim 2, wherein the computer module is configured to provide dynamic spatial data during delivery of a radiation therapy.

22. (Previously Presented) A system according to Claim 21, wherein the controller and/or computer module is in communication with an external beam radiation therapy source to thereby guide and/or gate the administration of the radiation therapy during a radiation therapy session.

23. (Currently Amended) A method of obtaining spatial data and radiation dose data regarding a target *in vivo* treatment site, comprising:

~~implanting at least one sensor unit proximate and/or in a target treatment site of a patient;~~

sensing *in vivo* at least one predetermined parameter of interest in a patient using at least one ~~the~~ implanted sensor unit;

wirelessly transmitting data associated with the sensed at least one parameter from the at least one sensor unit to an external reader;

~~providing an~~ moving an articulating arm about the patient in a three-dimensional pattern, the articulating arm having an associated ~~external~~ coupling member located external of the patient proximate the target treatment site, the coupling member being configured to cooperate with the at least one implanted sensor to generate a coupling signal with a signal strength that varies in relation to the position of the coupling member with respect to the at least one sensor unit;

~~moving the coupling member;~~

detecting the signal strength of the coupling signal at a plurality of locations traveled based on the moving step; and

determining the position of the at least one sensor unit in the body based on the detecting step, thereby having the implanted sensor unit act as a positional marker and an *in vivo* sensor.

Claims 24 –33 (Canceled)

34. (Previously Presented) A computer program product for obtaining spatial data regarding the position of at least one implanted sensor, the computer program product comprising:

computer readable storage medium having computer readable program code embodied in said medium, said computer-readable program code comprising:

computer readable program code for determining the spatial location of a selected one of the at least one implanted sensor units using input data associated with variation in signal strength of a coupling signal generated by an external solenoid and the at least one sensor unit over different known external positions of the external solenoid.

Claims 35-40 (Canceled)

41. (New) A method according to Claim 23, wherein the at least one sensor unit is a plurality of sensor units, wherein the target treatment site is associated with cancerous tissue, and wherein the at least one parameter comprises radiation and the method comprises determining the radiation dose delivered to the target site based on the sensing and transmitting steps.

42. (New) A method according to Claim 23, further comprising:

positioning the patient in an imaging system in a registered position;

obtaining an image of the target treatment site and at least one implanted sensor with the patient in the registered position in an imaging system;

aligning the coupling member to a fiducial marker associated with the imaging system relative to the registered position; and

obtaining an electrical measurement of signal strength of the coupling signal while the patient is in the registered position and the coupling member is aligned to define the initial spatial position of the at least one sensor unit in three-dimensional space.

43. (New) A computer program product according to Claim 34, wherein the computer product is configured to analyze radiation dose data using the at least one implanted sensor, said product further comprising computer readable program code for determining the radiation dose detected by the implanted sensor unit and computer readable program code for commencing wireless data transmission from the at least one implanted sensor unit, wherein the at least one sensor unit is positioned in a subject undergoing treatment for cancer.

44. (New) A computer program product according to Claim 34, further comprising computer readable program code that interfaces with an external beam radiation therapy system to provide real time dynamic spatial position information and radiation dose information thereat based on data from the at least one implanted sensor and the coupling signal.

45. (New) A computer program product according to Claim 35, further comprising computer readable program code that gates and/or guides the administration of the radiation therapy during a radiation session.

46. (New) A computer program product according to Claim 34, further comprising computer readable program code for wirelessly receiving temperature data from the at least one implanted sensor unit to determine the temperature of the treatment site.

47. (New) A computer program product according to Claim 34, further comprising computer readable program code that interfaces with a therapy system to provide real time dynamic spatial position data and selected internal parameter data of a target region thereto based on data from the at least one sensor and the coupling signal.